

REMARKS

Amendments to the Claims

Two amendments are made to claims 1, 37, and 38. These are made to clarify any ambiguity which may exist. First, the term “a plurality of peptide monomer units” is replaced with the term “two or three peptide monomer units.” Second, the term “at one end thereof” is replaced with “at one of its ends.” Each of these amendments is fully supported by the specification as originally filed.

The recitation of two or three peptide monomer units attached to a hub is supported by the specification at pages 3 and 4. The specification discloses:

The hub is preferably one or more amino acids, more preferably 1 to 6 amino acids and most preferably 1 amino acid. In a preferred embodiment, the hub is lysine. *When the hub is lysine, it is possible to attach 2 peptide monomer units via their C-terminus ends to the amino groups. A further peptide monomer unit or an active molecule can be attached to the carboxylic acid group.*

In a further preferred embodiment the hub is glutamic acid. *When the hub is glutamic acid, it is possible to attach 2 peptide monomer units via their N-terminus ends to the carboxylic acid groups. A further peptide monomer unit or an active molecule can be attached to the amino group.*

(emphasis added)

Thus the specification teaches that one can attach two or three peptide monomer units when the hub is either lysine or glutamic acid.

The recitation of “one of its ends” is merely a restatement of “one end thereof” that was originally used in the claim. Thus this recitation, too, is supported. No new matter is added.

Rejection of Claims 1-15 Under 35 U.S.C. §112, first paragraph

Claims 1-15 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicants respectfully traverse the rejection.

The Office Action asserts that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention. The U.S. Patent and Trademark Office asserts that there is insufficient description of the structure of the claimed hub-monomer units.

The U.S. Patent and Trademark Office cites the claim language “at one end thereof to the hub” and asks, “What end of the hub? The claim recitation regarding an end does not refer to an end of the hub, but rather to an end of the peptide monomer unit. To dispel any ambiguity, the claim language has been amended to clarify that an end of each of the peptide monomer units is referenced. An end of the peptide monomer unit is either its amino or carboxyl terminus.

The U.S. Patent and Trademark Office asks, “What side group of lysine and glutamic acid, thereof?” Each of lysine and glutamic acid is typically referred to as having a single side group, *i.e.*, the portion of the amino acid that does not form the peptide backbone. Thus the side group of glutamic acid is $-\text{CH}_2-\text{CH}_2-\text{COOH}$ and the

side group of lysine is $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{NH}_3^+$. As quoted above from pages 3 and 4 of the specification, the peptide monomer units can be attached to any free amino or carboxyl group of either the glutamic acid or lysine residue. When lysine is amino acid residue 17 of SEQ ID NO: 3 then it would have a free epsilon amino group and a free carboxyl group for attachment to an additional peptide monomer unit (*i.e.*, in addition to the rest of SEQ ID NO: 3). When glutamic acid is residue 1 of SEQ ID NO: 5, then it will have a free amino group as well as a free side group carboxyl group for binding to additional peptide monomer units (*i.e.*, in addition to the rest of SEQ ID NO: 5). In view of the disclosure at pages 3 and 4 quoted above, it is respectfully submitted that the claimed subject matter is fully and adequately supported.

The U.S. Patent and Trademark Office asks, “How can more than one monomer unit be attached at this one end of one hub?” As explained above the term “at one end thereof” (now “at one of its ends”) refers to an end of a peptide monomer unit, not an end of the hub. According the claim and the specification, each peptide monomer unit is attached at a separate functional group of the hub, *i.e.*, one peptide monomer unit is attached per individual free amino or free carboxyl group of the hub.

The U.S. Patent and Trademark Office correctly stated that “there can only a [sic] exist one or at the most a few monomer units which may be attached to the glycine [sic; lysine] or glutamic acid side chain of SEQ ID NO: 3 and 5, respectively, in order to meet the structural/functional limitations of the invention as claimed.” As suggested by the U.S. Patent and Trademark Office, applicants have amended the claims to clearly identify the number of monomer units that can be attached to a single amino acid hub.

In view of the claim amendments and the identification of the specification’s

support, applicants respectfully request withdrawal of the rejection.

Respectfully submitted,

By: /Sarah A. Kagan/

Sarah A. Kagan
Registration No. 32,141

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Banner & Witcoff
Customer No: 22907